

WHAT IS CLAIMED IS:

1. A process for preparing a polyisocyanate containing acylurea groups which comprises reacting an isocyanate corresponding to formula (I)



wherein

R represents an n-valent linear or branched aliphatic group or cycloaliphatic group having 4 to 30 carbon atoms or an aromatic group having 6 to 24 carbon atoms and

n is 1, 2, 3 or 4,

with an aliphatic and/or aromatic carboxylic acid in the presence of a metal-salt catalyst at a temperature of 20 to 220°C.

2. The process of Claim 1 wherein the catalyst comprises a member selected from the group consisting of salts of the elements of the first, second and third main group and the second and third subgroup of the periodic system of elements, and lanthanides.

3. The process of Claim 1 wherein the isocyanate comprises HDI, IPDI, TIN and/or H₁₂MDI.

4. The process of Claim 1 wherein the isocyanate comprises TDI, MDI or 1,5-diisocyanatonaphthalene.

5. The process of Claim 1 wherein an aliphatic carboxylic acid is used and comprises acetic acid, hexanoic acid, adipic acid, azelaic acid, cyclohexanedicarboxylic acid and/or dodecanedioic acid.

6. The process of Claim 3 wherein an aliphatic carboxylic acid is used and comprises acetic acid, hexanoic acid, adipic acid, azelaic acid, cyclohexanedicarboxylic acid and/or dodecanedioic acid.

7. The process of Claim 4 wherein an aliphatic carboxylic acid is used and comprises acetic acid, hexanoic acid, adipic acid, azelaic acid, cyclohexanedicarboxylic acid and/or dodecanedioic acid.

8. The process of Claim 1 wherein an aromatic carboxylic acid is used and comprises phthalic acid.

9. The process of Claim 3 wherein an aromatic carboxylic acid is used and comprises phthalic acid.

5 10. The process of Claim 4 wherein an aromatic carboxylic acid is used and comprises phthalic acid.

11. A polyisocyanate containing acylurea groups which is prepared by reacting an isocyanate corresponding to formula (I)

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$$R-(NCO)_n \quad (I),$$

wherein

R represents an n-valent linear or branched aliphatic group or cycloaliphatic group having 4 to 30 carbon atoms or an aromatic group having 6 to 24 carbon atoms and

15 n is 1, 2, 3 or 4,

with an aliphatic and/or aromatic carboxylic acid in the presence of a metal-salt catalyst at a temperature of 20 to 220°C.

20 12. The polyisocyanate of Claim 11 wherein the catalyst comprises a member selected from the group consisting of salts of the elements of the first, second and third main group and the second and third subgroup of the periodic system of elements, and lanthanides.

13. The polyisocyanate of Claim 11 wherein the isocyanate comprises HDI, IPDI, TIN and/or H₁₂MDI.

25 14. The polyisocyanate of Claim 11 wherein the isocyanate comprises TDI, MDI or 1,5-diisocyanatonaphthalene.

15. The polyisocyanate of Claim 11 wherein an aliphatic carboxylic acid is used and comprises acetic acid, hexanoic acid, adipic acid, azelaic acid, cyclohexanedicarboxylic acid and/or dodecanedioic acid.

16. The polyisocyanate of Claim 13 wherein an aliphatic carboxylic acid is used and comprises acetic acid, hexanoic acid, adipic acid, azelaic acid, cyclohexanedicarboxylic acid and/or dodecanedioic acid.

5 17. The polyisocyanate of Claim 14 wherein an aliphatic carboxylic acid is used and comprises acetic acid, hexanoic acid, adipic acid, azelaic acid, cyclohexanedicarboxylic acid and/or dodecanedioic acid.

10 18. The polyisocyanate of Claim 11 wherein an aromatic carboxylic acid is used and comprises phthalic acid.

19. The polyisocyanate of Claim 13 wherein an aromatic carboxylic acid is used and comprises phthalic acid.

20. The polyisocyanate of Claim 14 wherein an aromatic carboxylic acid is used and comprises phthalic acid.

15 21. A polyurethane coating composition containing a binder comprising the polyisocyanate of Claim 11.